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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,872	02/07/2005	Ralph Stoemmer	14219-078US1/P2002,0698 U	4400

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EXAMINER	
JONES, STEPHEN E	
ART UNIT	PAPER NUMBER
2817	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,872	STOEMMER ET AL.	
	Examiner	Art Unit	
	Stephen E. Jones	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *8 and 9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 10-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-21* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 February 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/7/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species 2 (Fig. 6) in the reply filed on 11/15/06 is acknowledged. The traversal is on the ground(s) that a generic claim is in common with the different species and that Species are not applicable to PCT rules. This is not found persuasive because species are indeed applicable to PCT rules (see MPEP 1893.03(d). Furthermore, the different embodiments each include special technical features different from the rest as identified in the lack of unity restriction.

The requirement is still deemed proper and is therefore made FINAL.

Applicant indicated that Claims 1-16 and 18-20 read on the elected species. However, upon examination it appears that Claims 8-9 more appropriately read on non-elected Fig. 10. Also, Claims 17 and 21 appear to read on the elected embodiment.

2. Accordingly, Claims 8-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/15/06.

Drawings

3. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4, 7, 10, 12, 16, 17, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panasik (US 6,441,703) in view of Goetz et al.

Panasik teaches a filter including: a substrate (i.e. a wafer (e.g. 256 in Fig. 6); layered resonator structures (e.g. 250) having two electrodes and a piezoelectric layer between them (e.g. see Col. 1, lines 60-67) (Claim 16); a reflector/mirror array (254) which includes metal and dielectric high acoustic impedance and low acoustic

impedance material layers (e.g. see Col. 5, SiO2 and Tungsten) (claims 12, 17, 19) which are quarter wavelength (e.g. see Col. 2) (Claim 2), and can have additional layered pairs (e.g. see Col. 7, lines 23-32) (Claim 3); the reflector provides a hermetic cover (e.g. see Col. 7, lines 10-22); the dielectric is planar and is over the entire device/chip which has additional filters (e.g. see Figs. 1 and 5-6, col. 3, and lines 45-67) (Claims 7, 10); and the resonators are electrically interconnected by the layer structure (e.g. see Fig. 2 and Col. 4) (Claim 21).

However, Panasik does not explicitly teach that the dielectric layer is above the layered resonator structure with the metal layer above the dielectric layer or that the dielectric of the mirror/reflector comprises the hermetic encapsulation (Claims 1 and 4).

Goetz provides the general teaching that SiO2 may provide a hermetic seal for an acoustic wave device (e.g. see Col. 4, lines 46-53).

Also, it is well-known to use the top electrode of a resonator to also function as a high impedance layer of the mirror.

It would have been considered obvious to one of ordinary skill in the art to have used the top electrode layer of the resonator to have also functioned as a high impedance layer of the acoustic mirror, because it would have provided the well-known advantageous benefit of reducing the number of layers needed to form the resonator in combination with the reflector. As an obvious consequence, the device results in the dielectric layer being under the top metal layer.

Furthermore, it would have been considered obvious to one of ordinary skill in the art to have the SiO2 reflector/mirror layer comprise the hermetic seal such a

suggested by Goetz, especially since Panasik suggests that the reflector/mirror provides hermetic sealing and includes SiO2 which is a known adequate hermetic sealing material for acoustic devices as taught by Goetz.

7. Claims 5, 6,11,13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panasik (US 6,441,703) and Goetz et al as applied to claims 1 and 4 above, and further in view of Klee (US 6,768,396).

The combination of Panasik and Goetz teaches a filter as described above, but does not explicitly teach that the dielectric layer comprises a low-k, organic material such as benzocyclobutene (Claims 5-6, 11) or an aerogel (Claims 13, 18).

Klee teaches that benzocyclobutenes and aerogels can be used as a dielectric for acoustic reflectors (e.g. see Col. 2, lines 64-67 and Col., 3, lines 1-20).

It would have been considered obvious to one of ordinary skill in the art to have substituted benzocyclobutenes or aerogels such as taught by Klee in place of the SiO2 dielectric in the combination of Panasik and Goetz, because it would have been a mere substitution of well-known art-recognized functionally equivalent dielectric layer means for forming an acoustic reflector/mirror.

8. Claims 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panasik (US 6,441,703) and Goetz et al. as applied to claims 1 and 4 above, and further in view of Ella (cited by applicant).

The combination of Panasik and Goetz teaches a filter as described above, but does not explicitly teach that the wafer surface has solderable contacts connected to the resonators.

Ella (e.g. Fig. 10a-10b) teaches solderable contacts for connecting to the resonators of the filter.

It would have been considered obvious to one of ordinary skill in the art to have connected the Panasik/Goetz device with solderable contacts such as taught by Ella, especially since Panasik is silent as to the particulars of the connections thus any known connection means such as solderable contacts of Ella would have provided a well-known means for connecting the filter device to other circuits to thus make the filter useful.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Panasik (US 6,441,703) and Goetz et al. as applied to claims 4 above, and further in view of Panasik (US 6,087,198 cited by applicant).

The combination of Panasik and Goetz teaches a filter as described above, but does not explicitly teach that the wafer surface has solderable contacts connected to the resonators via feedthroughs.

Panasik (US 6,087,198) teaches that well-known vias can be used to make connections for acoustic filters (e.g. see Col. 6, lines 12-20).

It would have been considered obvious to one of ordinary skill in the art to have connected the Panasik/Goetz device with vias and solderable contacts such as taught by Panasik (US 6,087,198), especially since Panasik (6,441,703) is silent as to the particulars of the connections thus any well-known connection means such as solderable contacts and vias through the substrate would have provided a well-known means for connecting the filter device to other circuits to thus make the filter useful.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 571-272-1762. The examiner can normally be reached on Monday through Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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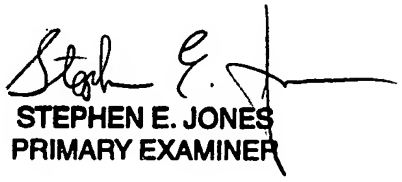

STEPHEN E. JONES
PRIMARY EXAMINER